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Objective: IMOD as a multi-herbal-selenium electromagnetically-treated combination was tested for its potential on the function and level of reactive oxygen species (ROS) in isolated rat pancreatic islets.
Methods: After Laparotomy, pancreas were removed and islets were isolated and incubated in RPMI 1640 for 24 hours and then islets were separated and divided into several tubes containing ten in each. IMOD at logarithmic doses (0.1, 1, 10, 100 and 1000 μM) were added to islets and incubated for 24 hours and then static insulin secretion, at low dose (2.8 mM) and high dose (16.7 mM) glucose was tested. Cells viability and ROS were also determined.
Results: IMOD at 0.1 μM increased islet insulin secretion in response to glucose in both basic and stimulation levels. This drug at 1 μM dose only increased insulin concentration in stimulation levels of glucose. IMOD at 10, 100, and 1000 μM decreased insulin secretion in both levels of glucose. The change of viability at the dose of 0.1 and 1 μM increased. The result of ROS test showed a decrease at the lower dose (0.1 μM) but increased dose-dependently at the doses of 10, 100 and 1000 μM.
Conclusion: IMOD has significant anti oxidative effects at low doses and improves insulin secretion and viability of isolated islets in both basic and stimulation levels of glucose. High dose of IMOD induces oxidative stress and reduces function of isolated islets.

Keywords: Oxidative Stress, IMOD, Pancreatic Islet Isolation

Poster

190 Role of Nicotinamid Adenine Dinucleotide Phosphate-Oxidase (NADPH-Oxidase) Enzyme Activity in Multi Organ Toxicity of Diazinon in Rat

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Objective: Diazinon is one of the most widely used organophosphate insecticides (OPI) for agriculture and public health programs. The aim of this study is to assess the role of NADPH oxidase activity as a key enzyme in oxidative stress processes in liver, pancreas and heart of rat diazinon subacute poisoning.
Methods: Mature male Wistar rats were given diazinon (35 and 70 mg/kg; 1/10 and 1/5 of the LD50, respectively) via gavage for 4 weeks. At the end of the treatment, the liver, pancreas and heart tissues were analyzed for *Reactive oxygen species* (ROS), NADPH oxidase activity and biochemical serum markers, Alanine transaminase (ALT), Aspartate aminotransferase (AST), Alkaline phosphatase (ALP), Amylases and Lactate dehydrogenase (LDH) were taken from rats at four weeks.
Result: Diazinon (70 mg/kg) in comparison with control group significantly induced NADPH oxidase activity in the heart ($p<0.05$) and liver ($p<0.05$) that it positively affected oxidant/antioxidant system (a decline in the levels of total antioxidant capacity and increase of ROS). These effects showed a close relation to increased hepatic enzymes, ALT ($p<0.01$), AST ($p<0.01$), ALP ($p<0.01$), and CPK ($p<0.05$) as a cardiac marker toxicity. Despite, increasing of ROS ($p<0.001$) in pancreas tissue and serum amylase ($p<0.001$), no significant change was observed in NADPH oxidase activity.

Conclusions: Increasing of NADPH oxidase activity in the heart and liver is one of the most relevant element of diazinon-induced toxicity.

Keywords: NADPH Oxidase, Diazinon, Multi Organ

191 Frequency of Aluminum Overload in Hemodialysis Patients : Arak – 1389

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Objective: Chronic aluminum exposure and toxicity continue to be a problem for many patients under haemodialysis treatment, particularly in some areas equipped by aluminum industries. The two most prevalent sources of aluminum in this population are water used to prepare dialysate and aluminum-containing phosphate binders. The purpose of this study was to determine the prevalence of aluminiuim overload in haemodialysis patients of university hospital of Arak.
Methods: Serum aluminum level was measured by atomic reabsortion spectrophotometry using in 136 haemodialysis patients (mean age of 59±15 years, 52% male). The serum level of aluminum more than 30 ug/L considered as aluminum overload. Statistical analysis was performed using two samples student t test or mann-whitney as appropriate. P value <0.05 was considered significant a priori.
Results: The mean value for serum aluminum was 15.63 ± 13.9 ug/L (range of 0.73 – 75.59 ug/L). Twenty one of 136 (15%) patients met the criteria for a significant elevation of aluminum level from permitted value base of NKF-DOQI guidelines. There were no significant differences by age, gender, dialysis vintage and underling diabetes between normal and aluminum overload cases (p>0.05).
Conclusion: Despite recent technical and treatment improvements in hemodialysis patients care, yet aluminum overload is a health problem in many area of our country and hemodialysis units should consider routine monitoring of aluminum in all hemodialysis patients and every 3 months in high risk patients like who receive aluminum-containing medications as recommended by NFK-DOQI guidelines.

Keywords: Aluminum Overload, Hemodialysis, Serum Aluminum

157 Children and the Risks of Pesticide Exposure

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Objective: Children are at a greater risk for exposure to some pesticides for a number of reasons. Children's internal organs are still developing and maturing and their enzymatic, metabolic, and immune systems may provide less natural protection than those of an adult. There are "critical periods" in human development in which exposure to a toxin can permanently alter normal body functioning. Children are exposed to certain pesticides more often than the adults because of their differences in diet.
Methods: In this paper, the most important effects of pesticides on children are summarized based on numerous studies in the world.
Results: Children in families involved with agriculture comprise 70.4% of all working children. Among working boys, 68.9% are involved in agriculture, and among working girls, 75.3% are involved in agriculture. Children typically consume larger quantities of food stuff per kilogram of body weight compared to adults. Children's behaviors, such as playing on the locations where pesticides are commonly applied, or putting objects in their mouths, increase the chances of their exposure to pesticides. Adverse effects of pesticide exposure range from mild symptoms of dizziness and nausea to serious, long-term